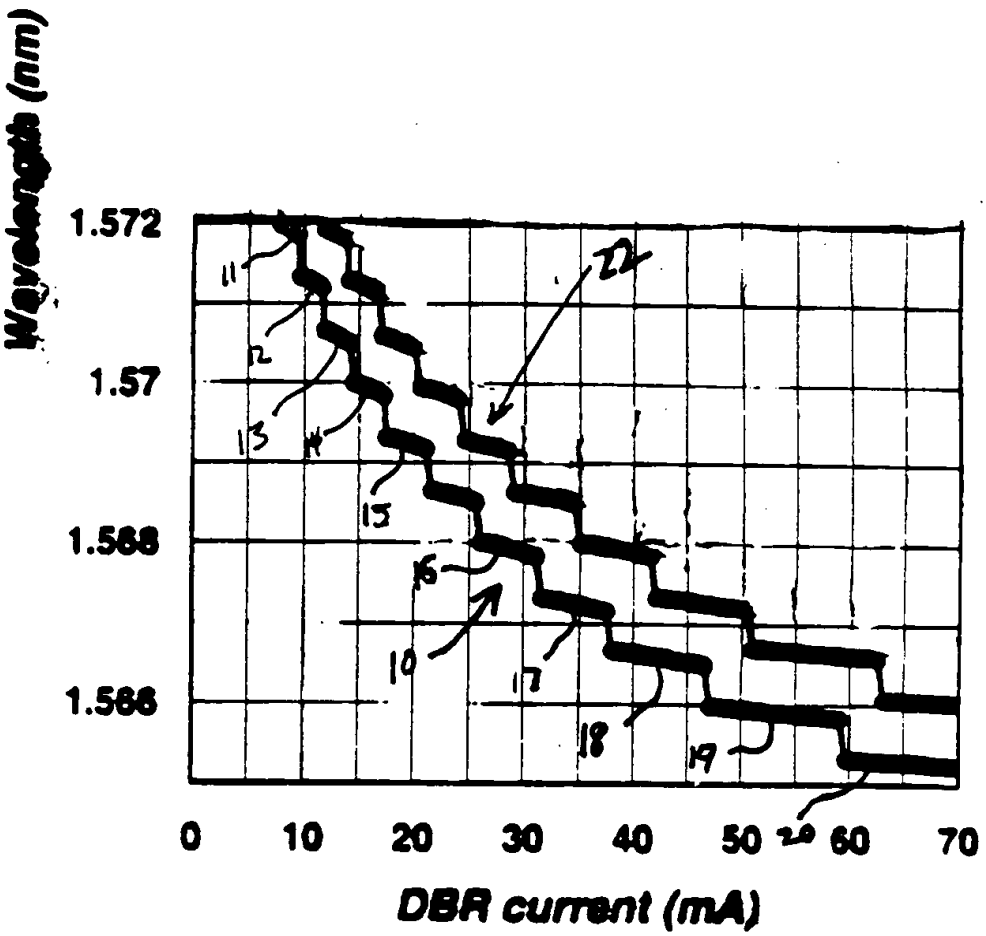
FIG. 1 (prior art)



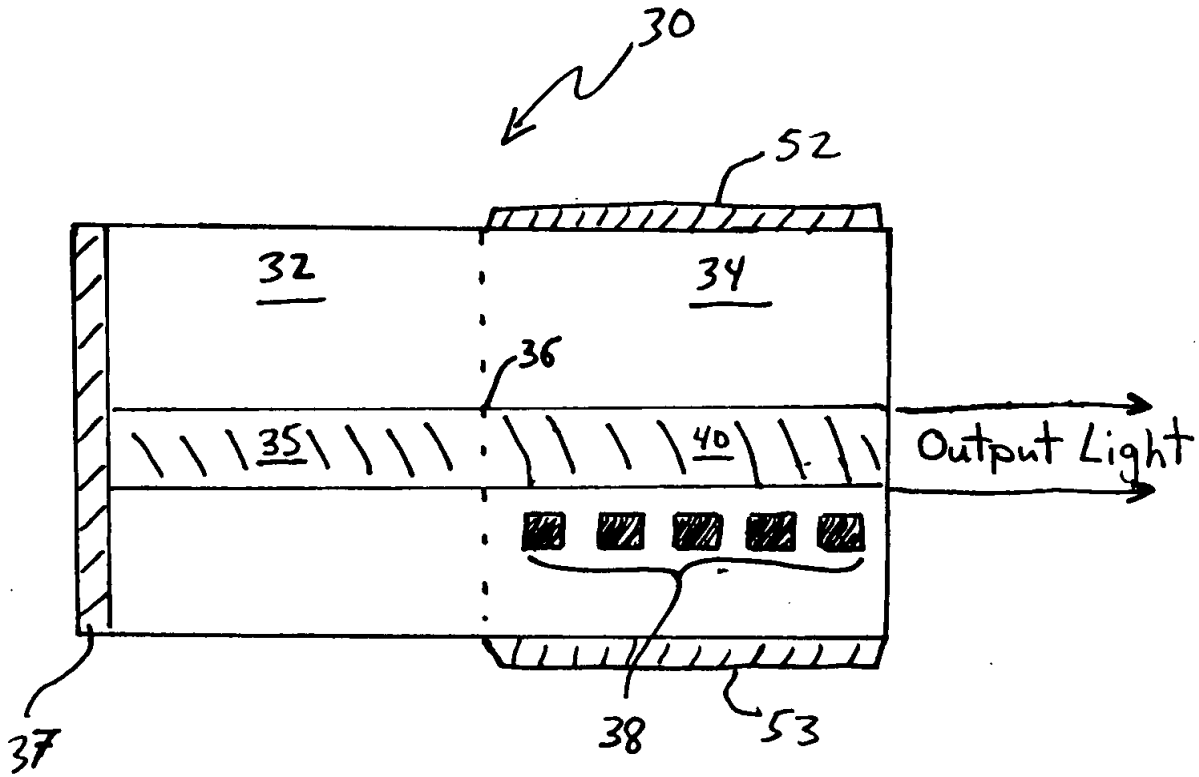
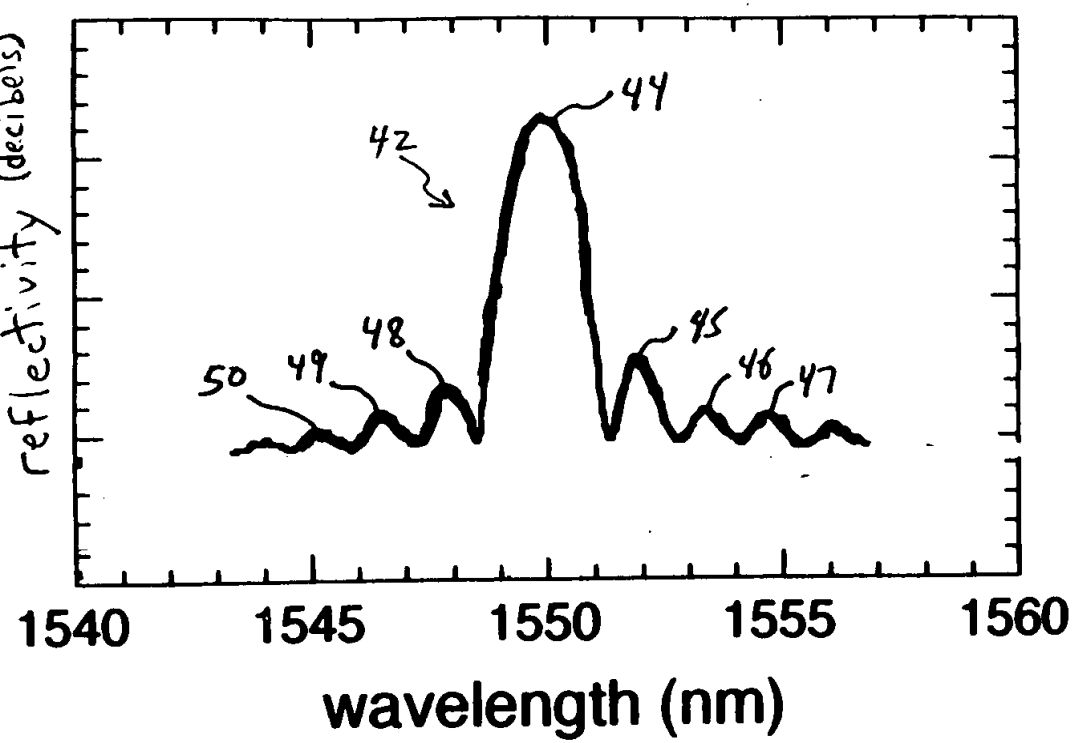


FIG. 2

FIG. 3



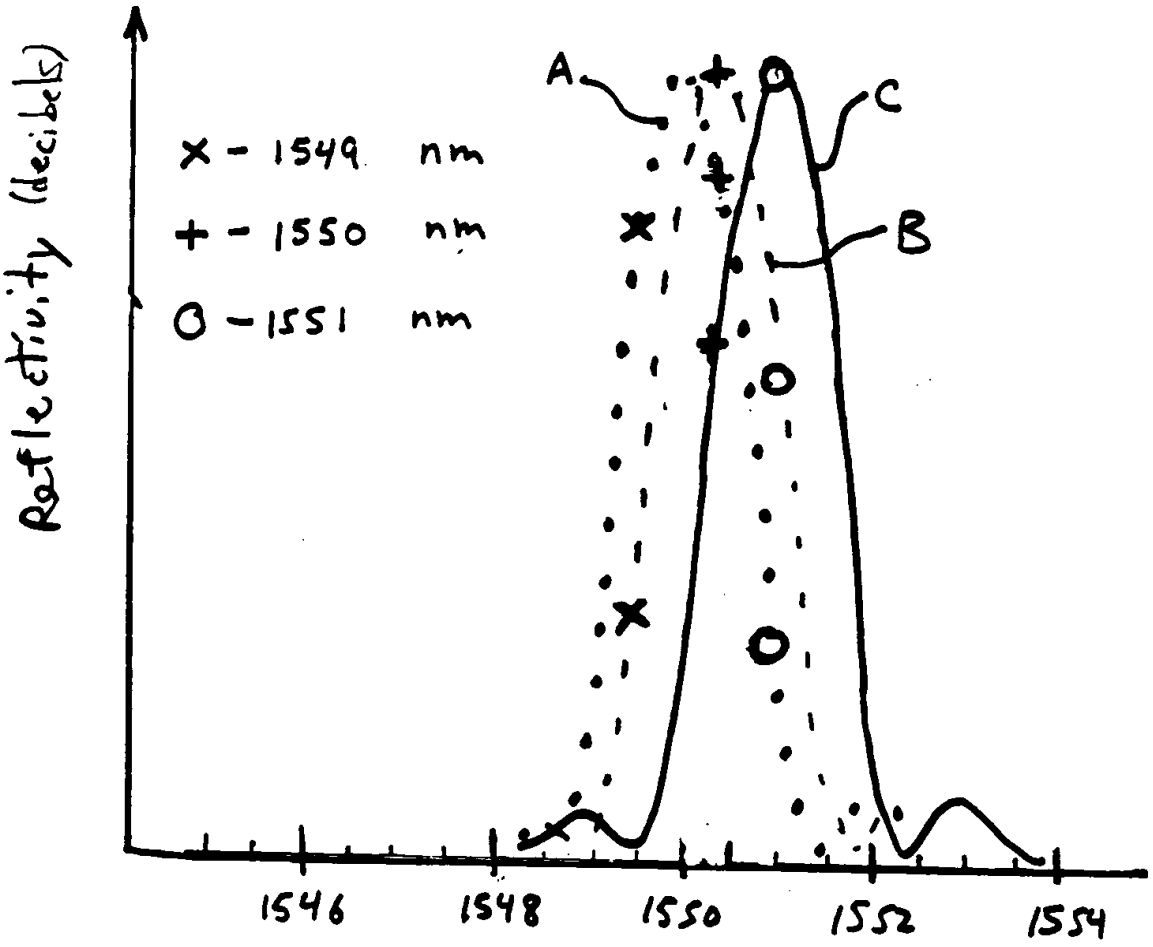

Reflectivity (decibels)
x - 1549 nm
+ - 1550 nm
O - 1551 nm
A
B
C
1546
1548
1550
1552
1554

FIG. 4

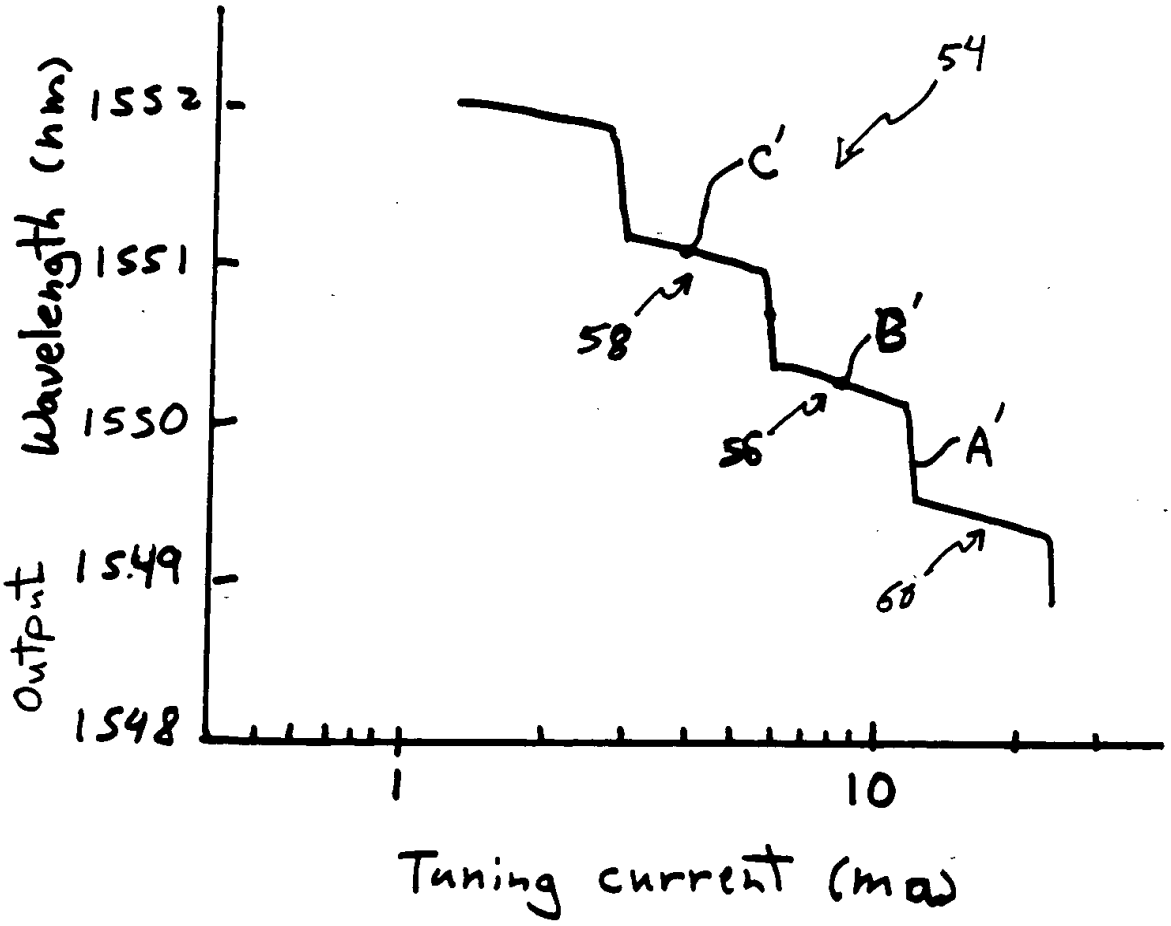

Output wavelength (nm)
1552
1551
1550
1549
1548
1
10
Tuning current (ma)
54
C'
B'
A'
58
56
60

FIG. 5

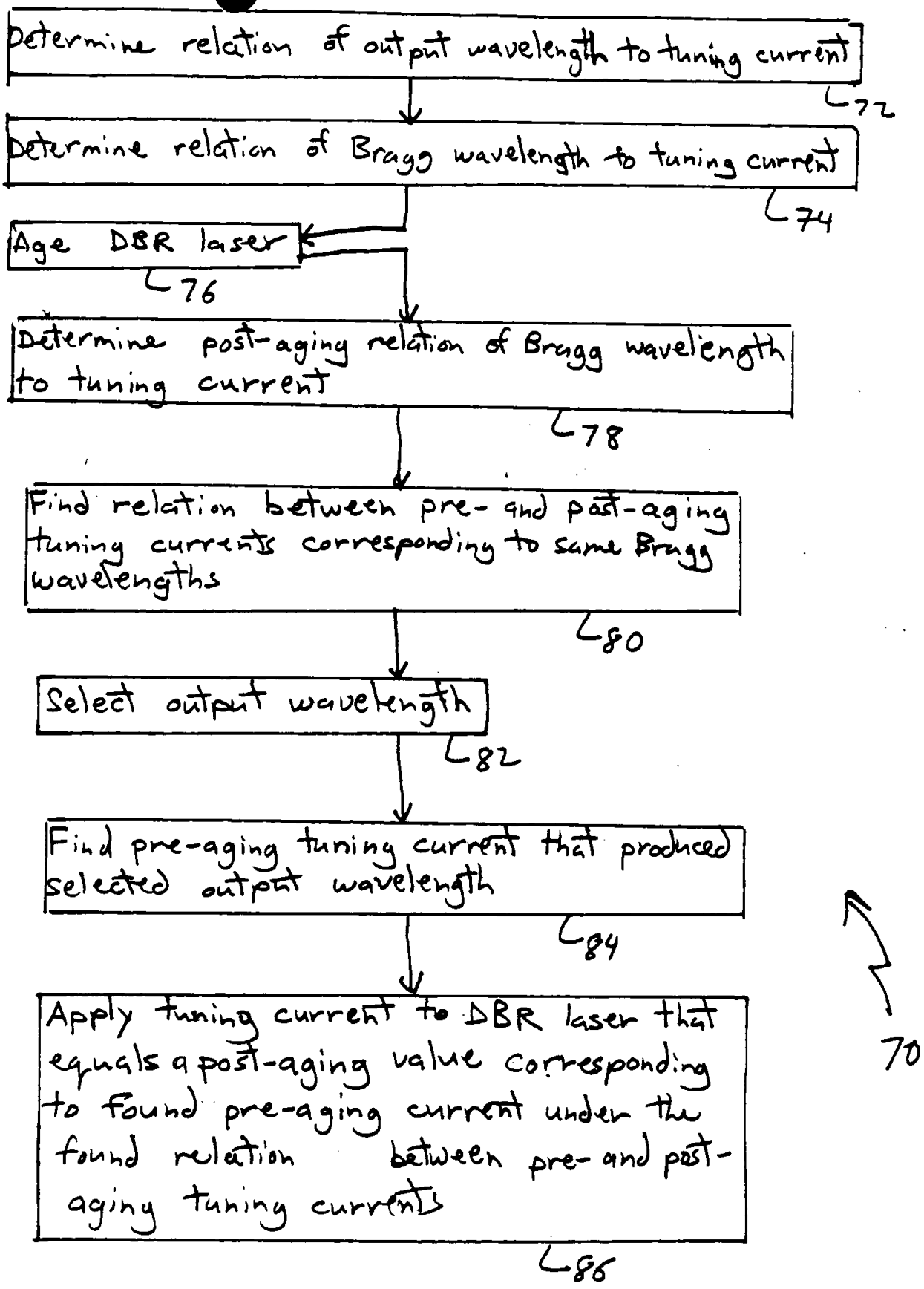

Determine relation of output wavelength to tuning current
72
Determine relation of Bragg wavelength to tuning current
74
Age DBR laser
76
Determine post-aging relation of Bragg wavelength to tuning current
78
Find relation between pre- and post-aging tuning currents corresponding to same Bragg wavelengths
80
Select output wavelength
82
Find pre-aging tuning current that produced selected output wavelength
84
Apply tuning current to DBR laser that equals a post-aging value corresponding to found pre-aging current under the found relation between pre- and post-aging tuning currents
86
70

FIG. 6

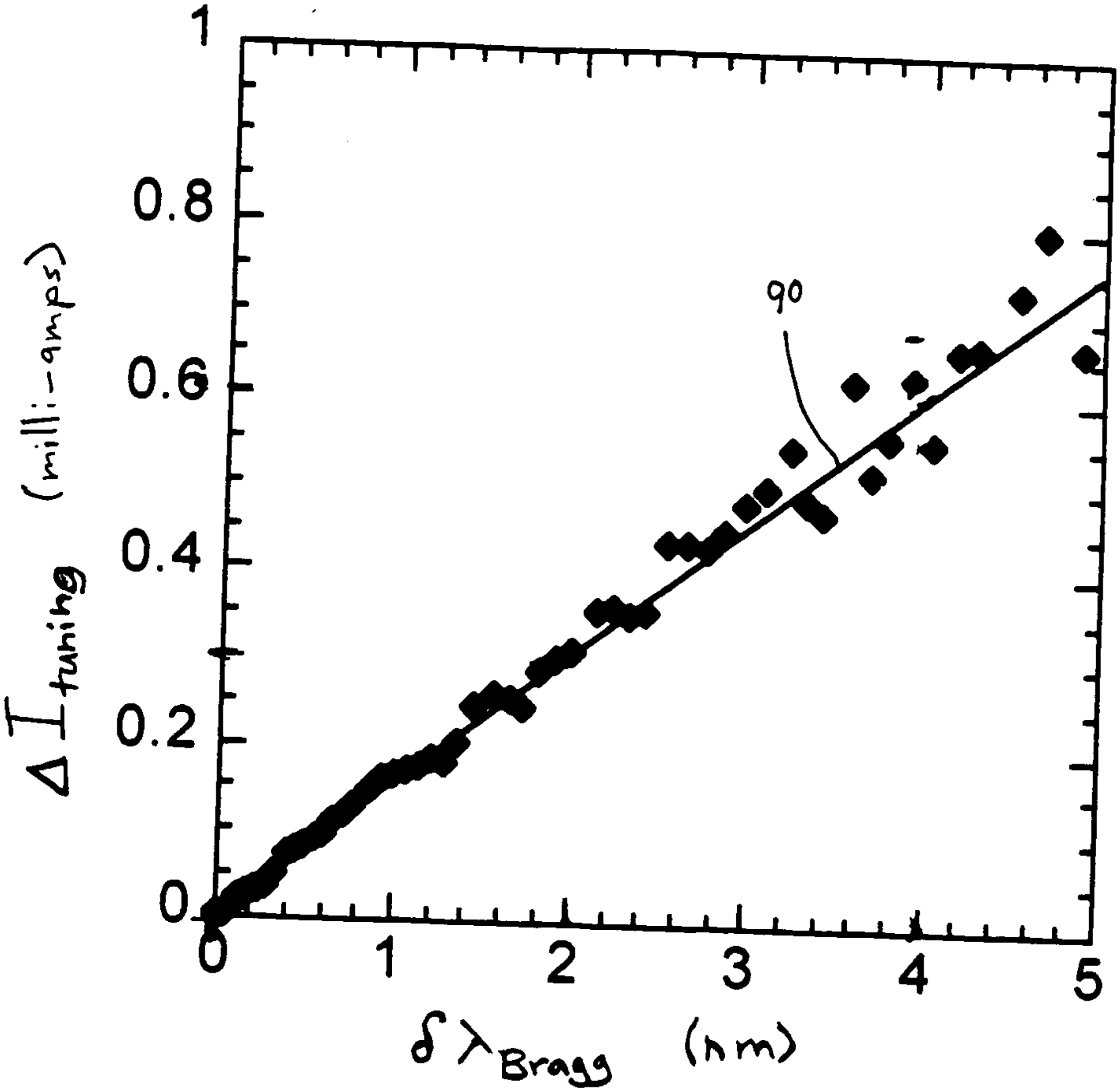
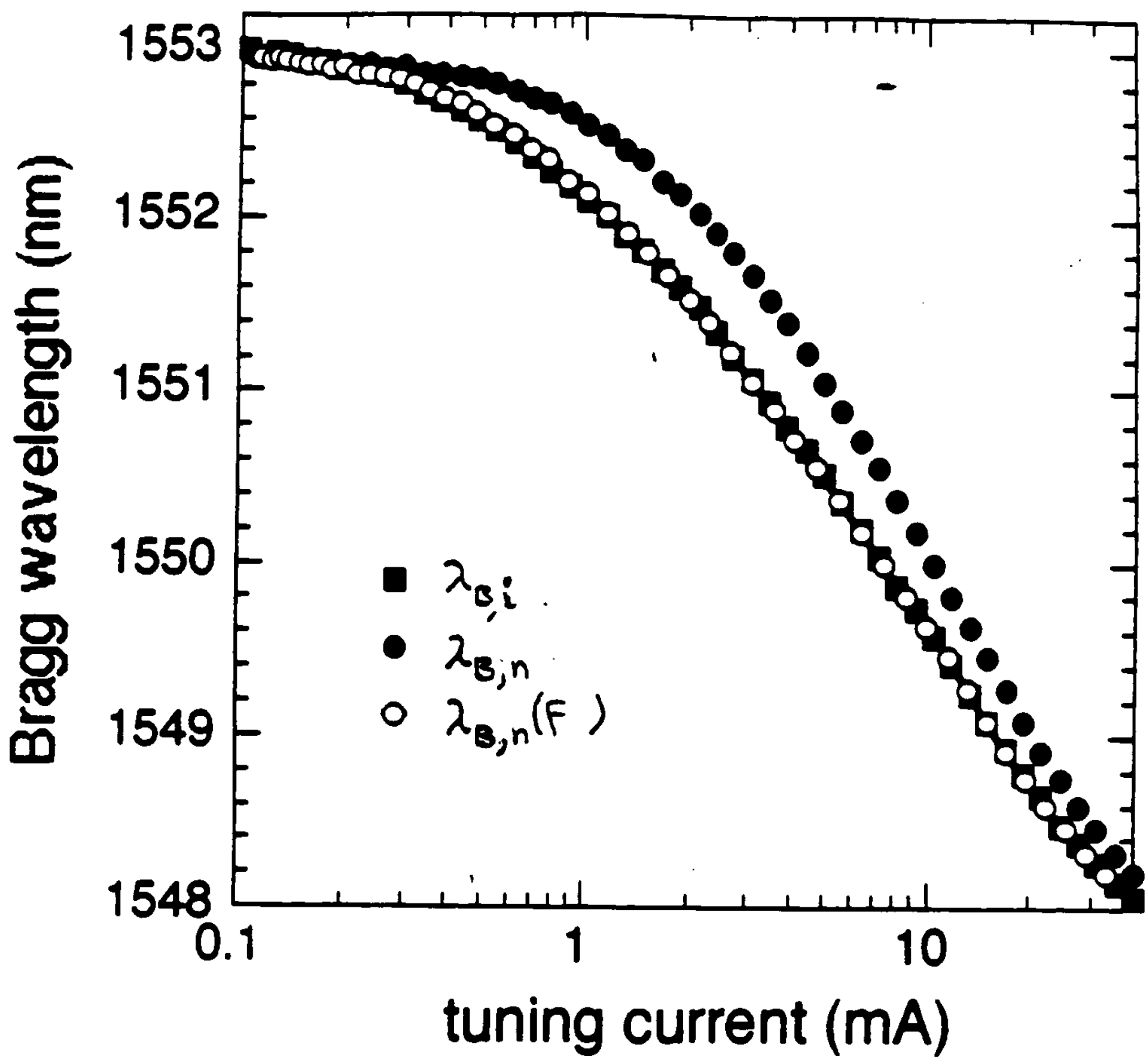


Fig. 7

FIG. 8A



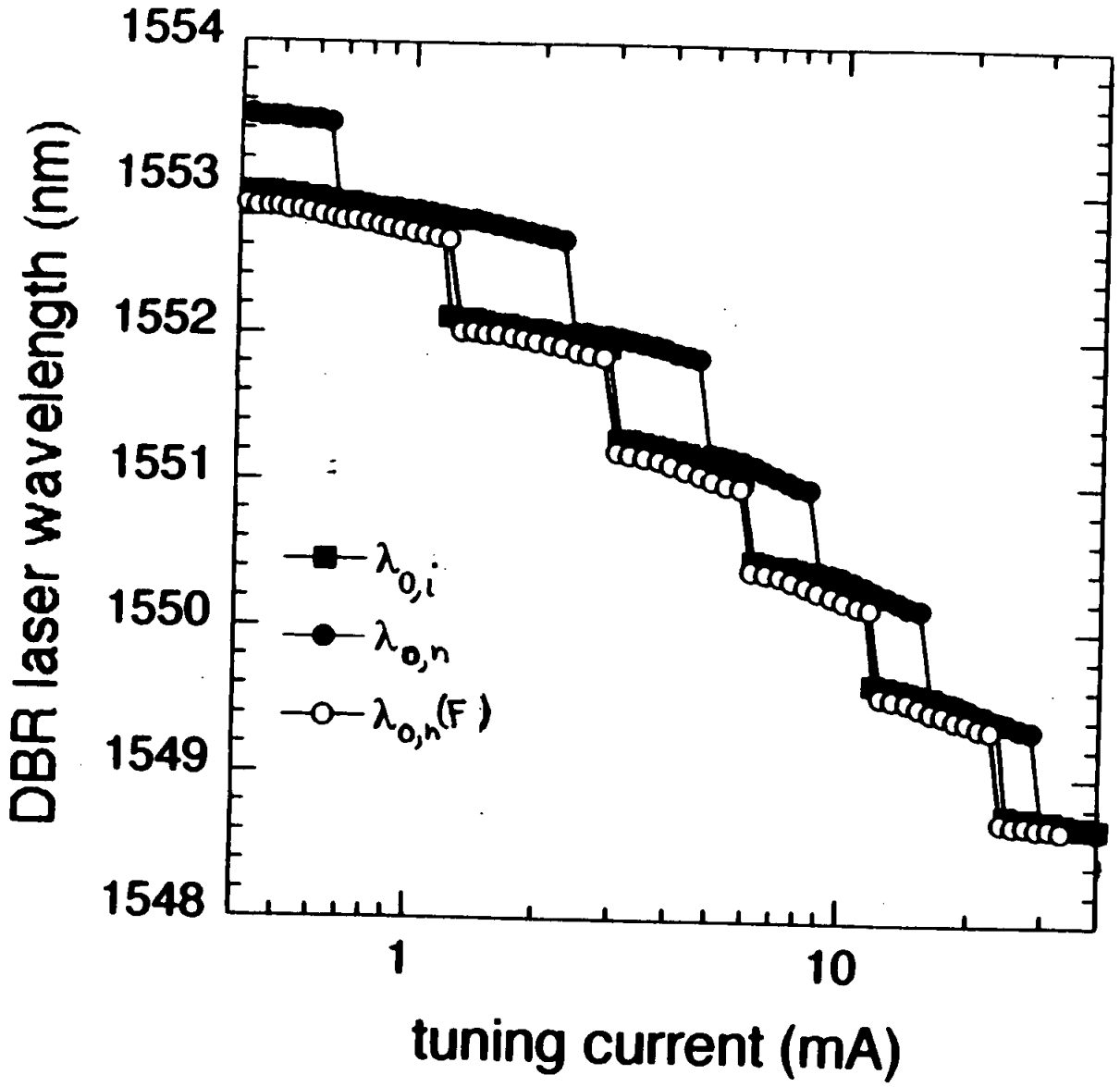
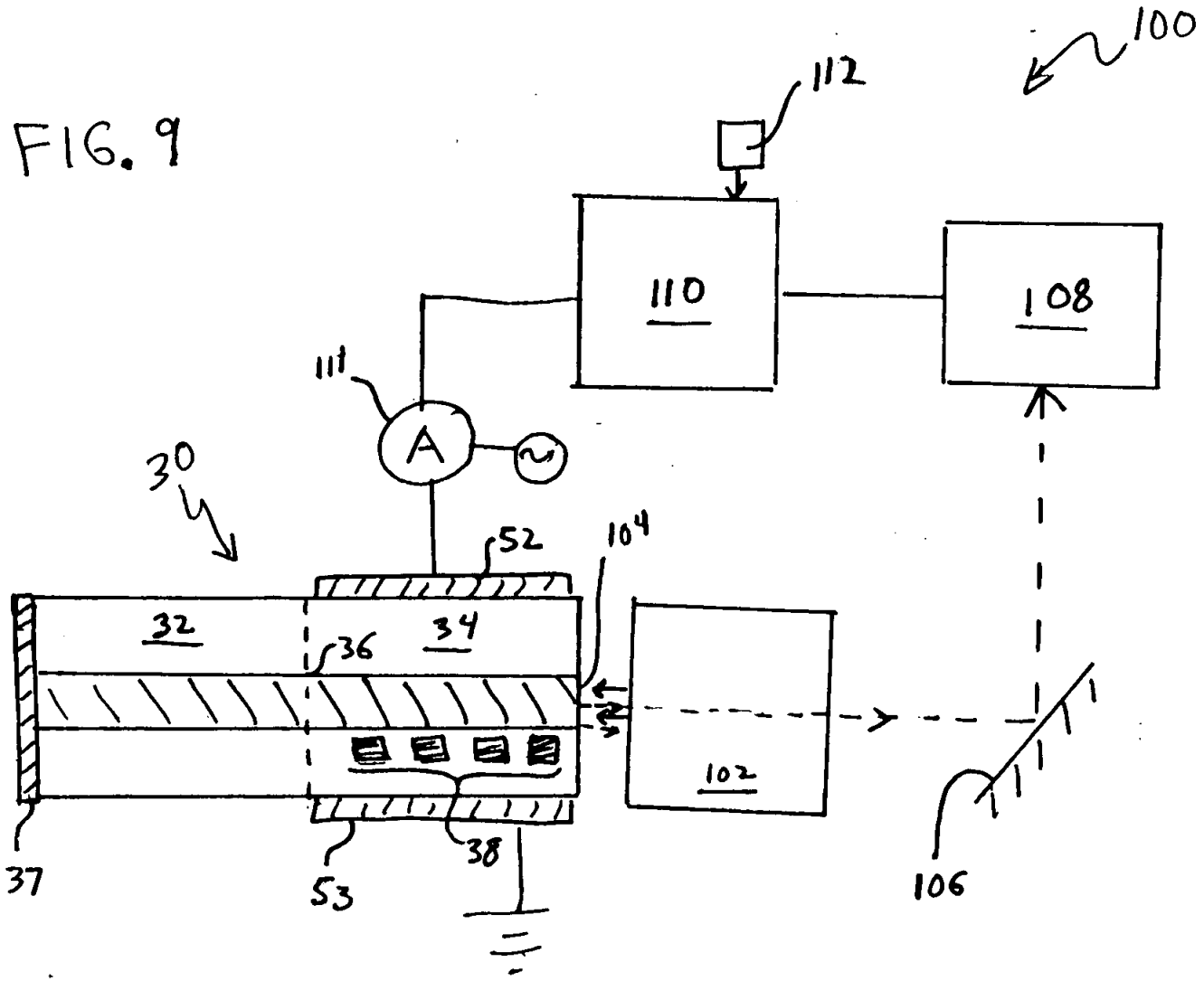


FIG. 8B

FIG. 9



F16.10

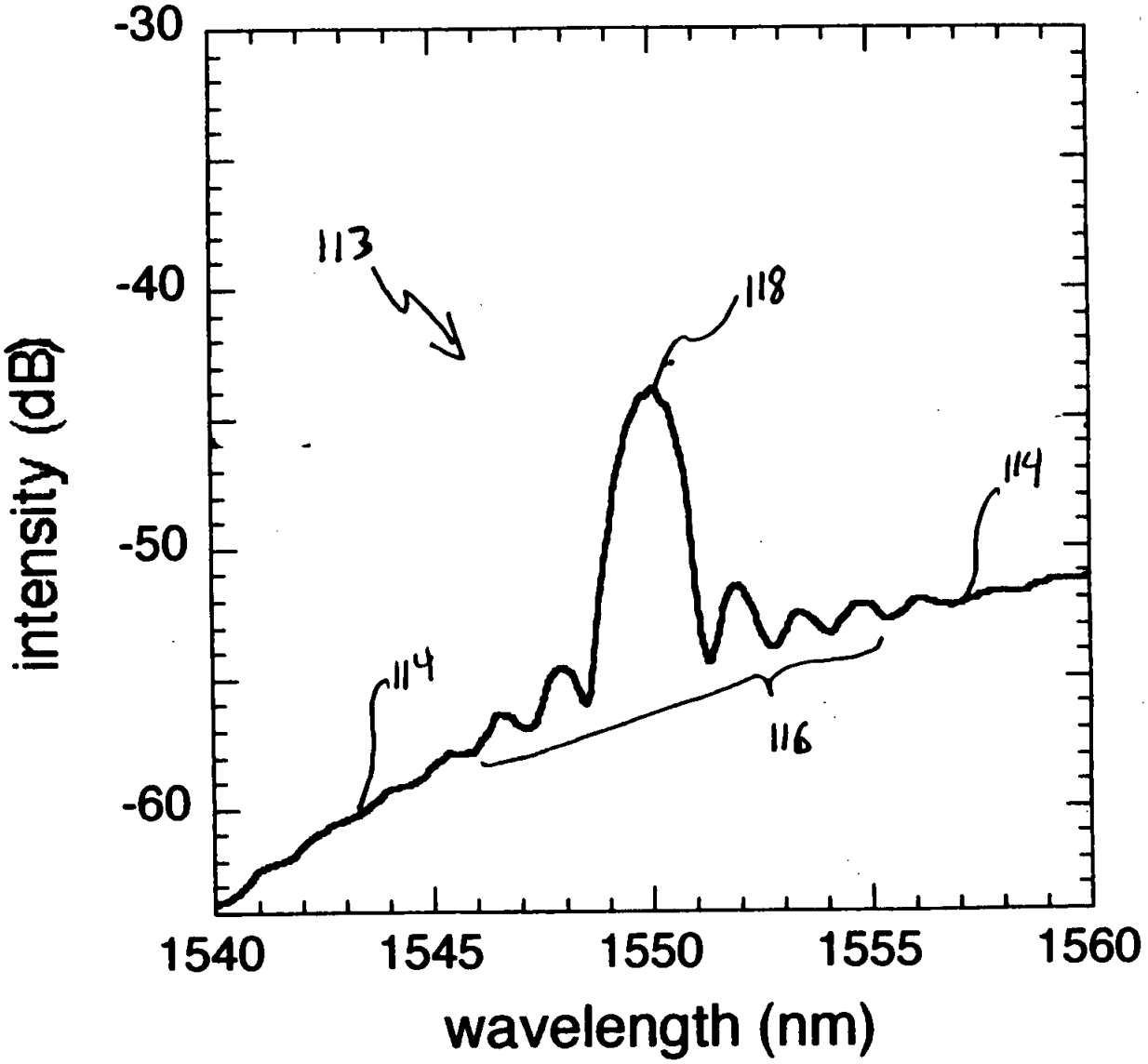
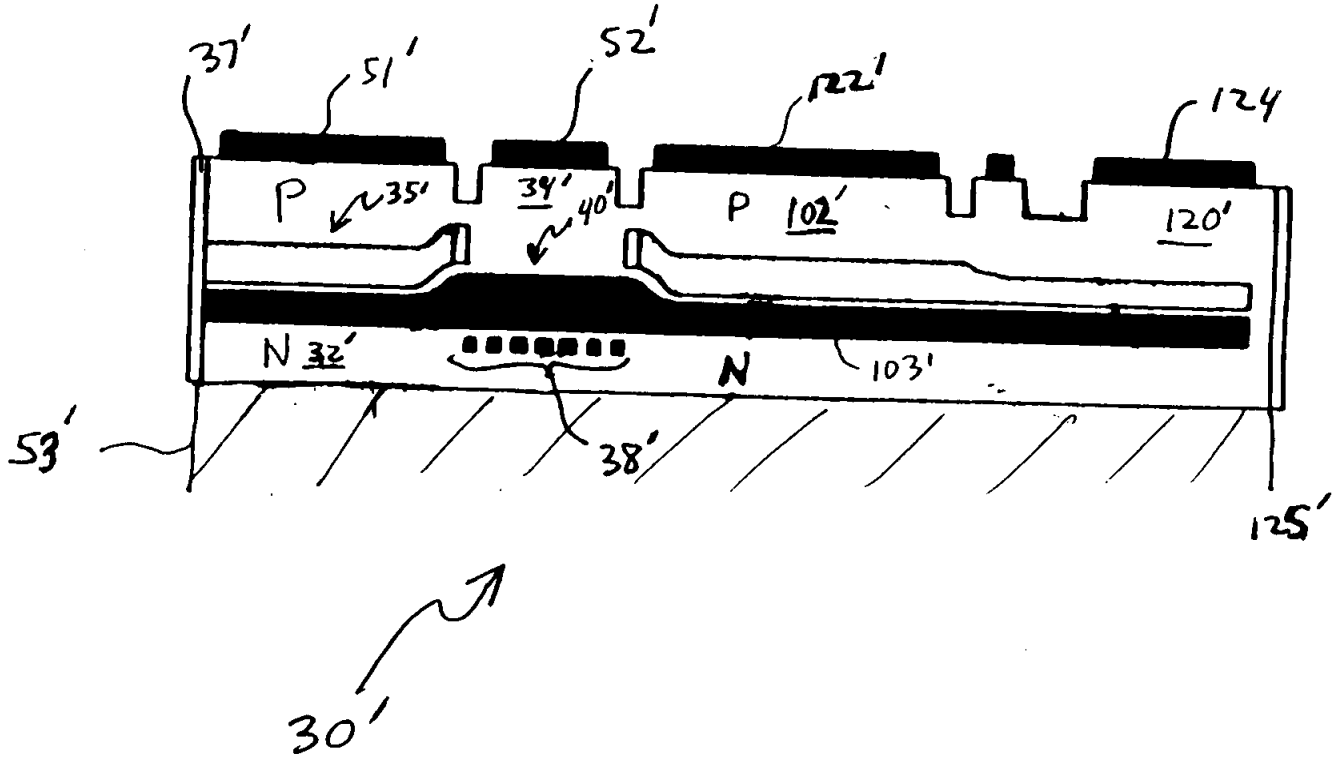
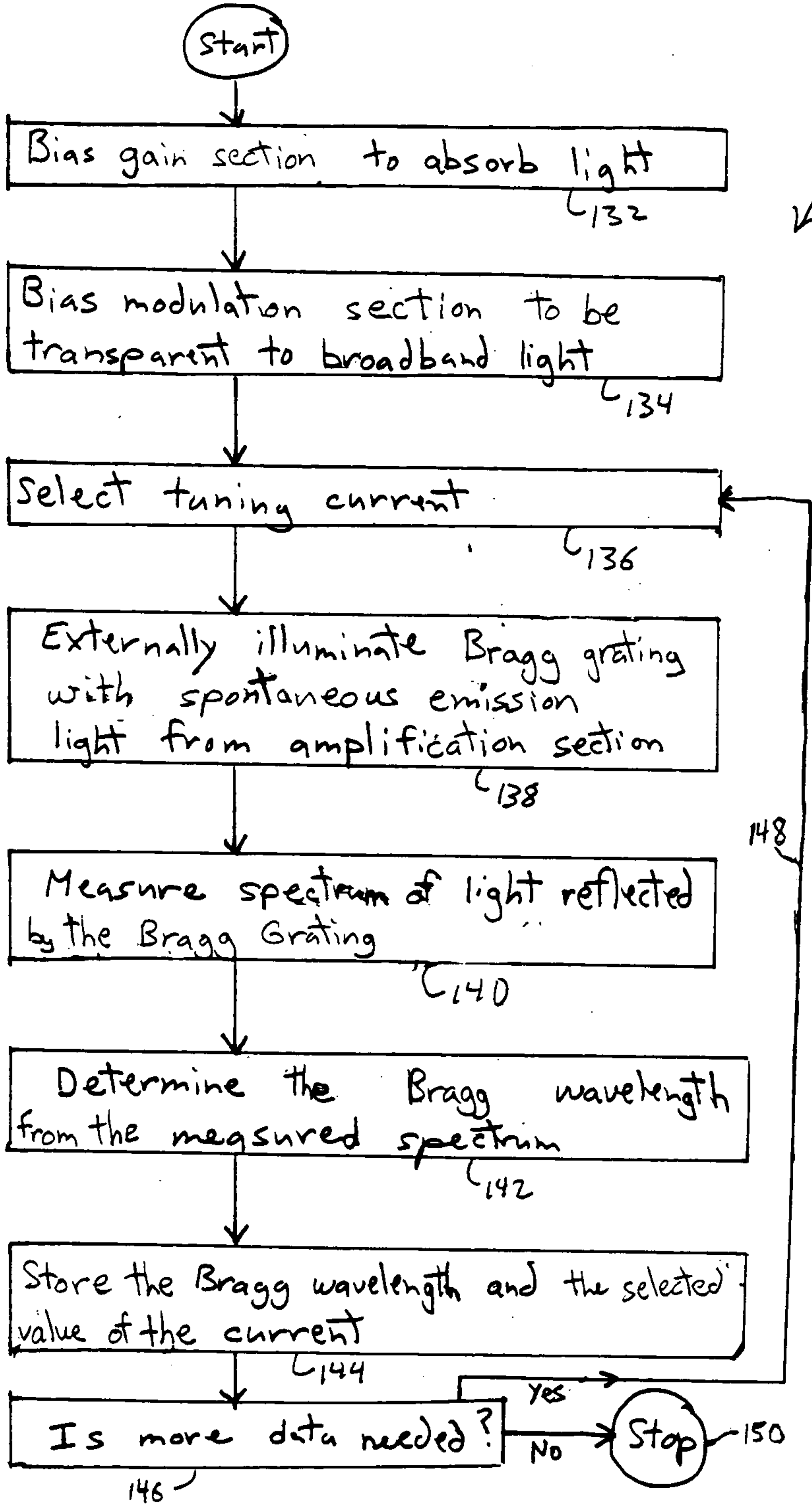


FIG. 11

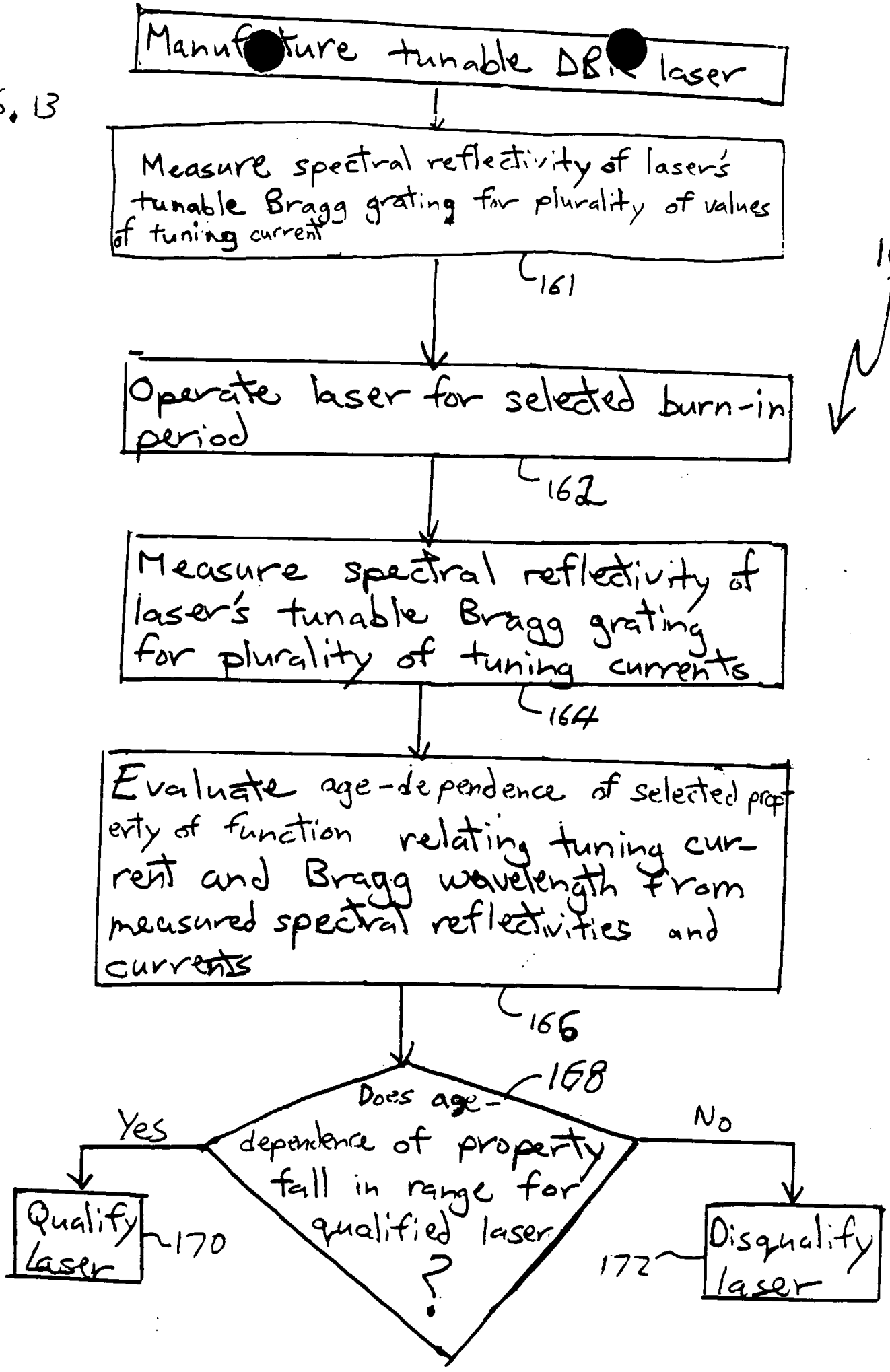



Start
Bias gain section to absorb light
132
Bias modulation section to be transparent to broadband light
134
Select tuning current
136
Externally illuminate Bragg grating with spontaneous emission light from amplification section
138
Measure spectrum of light reflected by the Bragg Grating
140
Determine the Bragg wavelength from the measured spectrum
142
Store the Bragg wavelength and the selected value of the current
144
Is more data needed?
146
Yes
148
No
Stop
150

130

FIG. 12

FIG. 13


Manufacture tunable DBR laser
Measure spectral reflectivity of laser's tunable Bragg grating for plurality of values of tuning current
161
160
Operate laser for selected burn-in period
162
Measure spectral reflectivity of laser's tunable Bragg grating for plurality of tuning currents
164
Evaluate age-dependence of selected property of function relating tuning current and Bragg wavelength from measured spectral reflectivities and currents
166
Does age-dependence of property fall in range for qualified laser ?
168
Yes
No
Qualify Laser
170
Disqualify laser
172

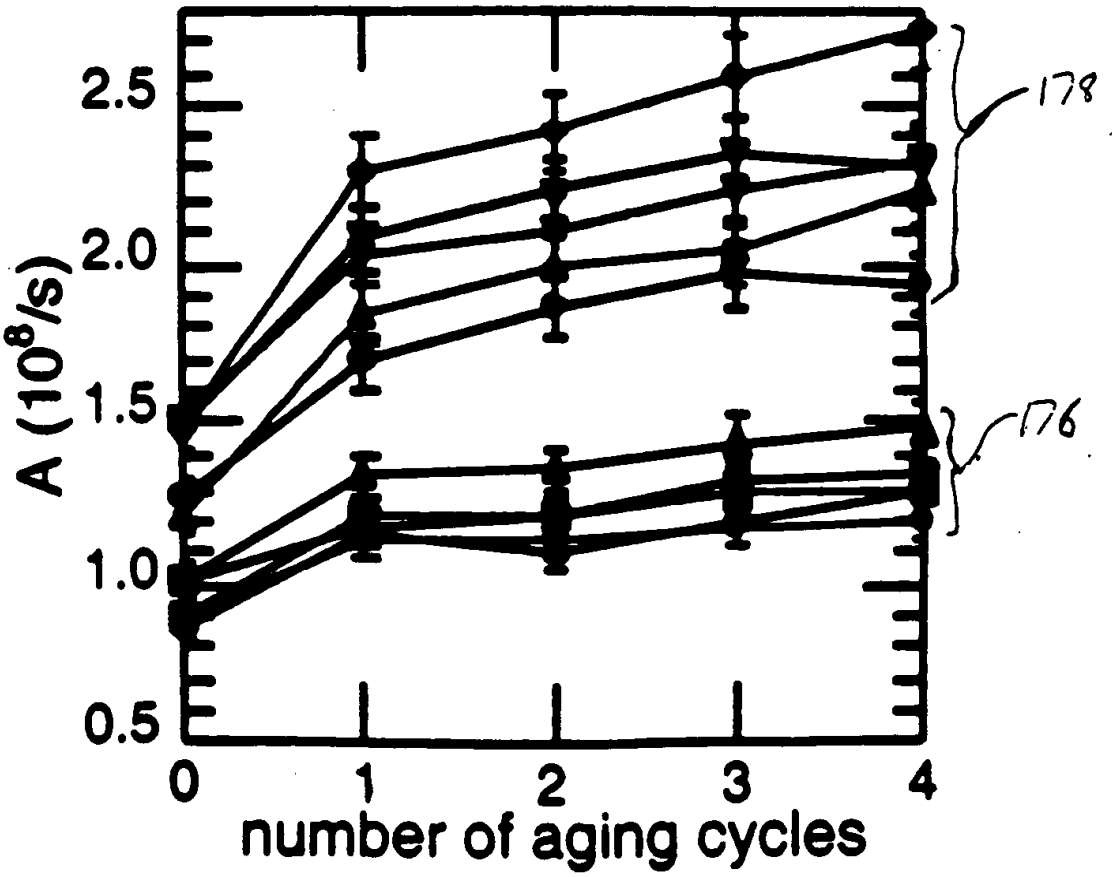


FIG. 14

FIG. 1

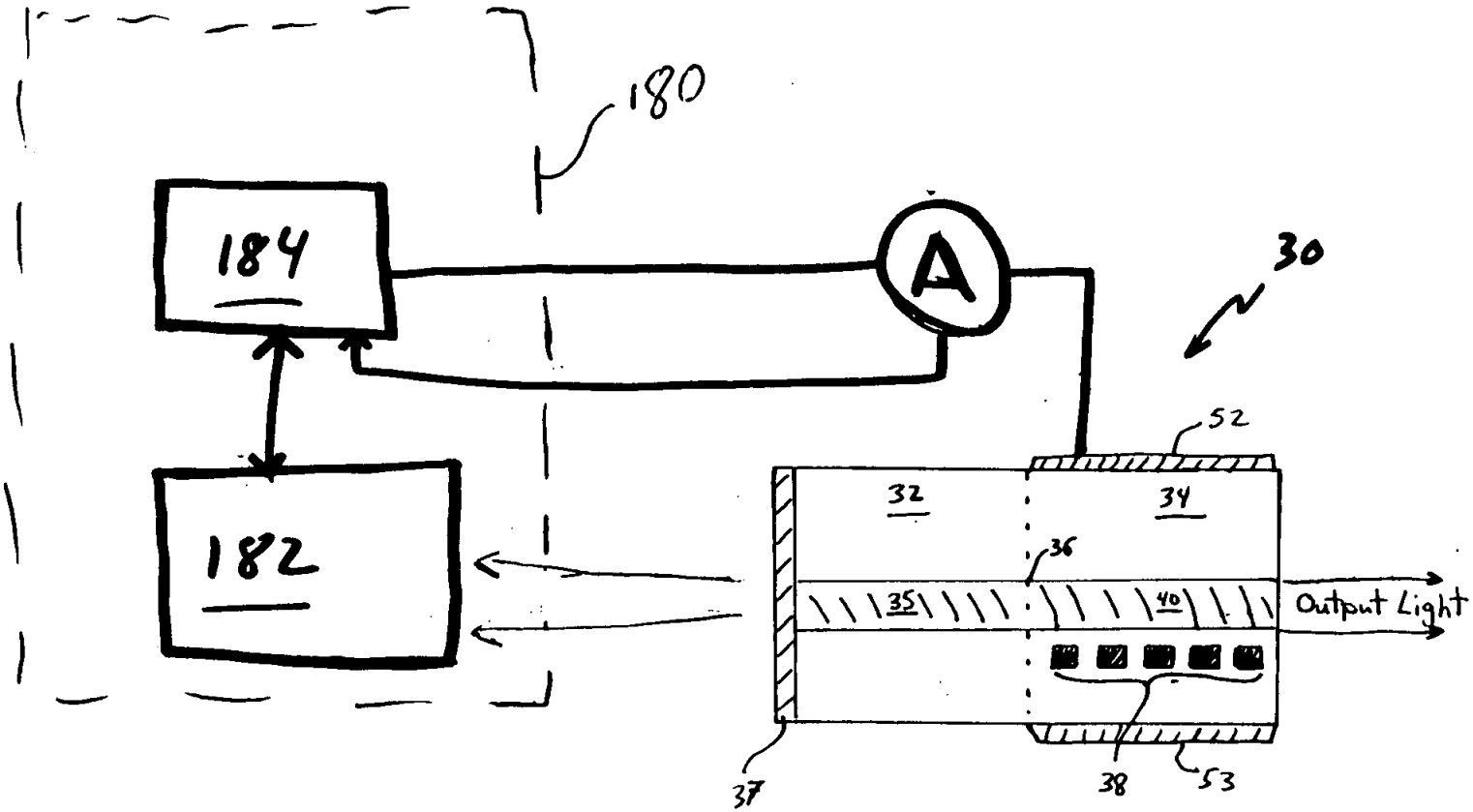


FIG. 2

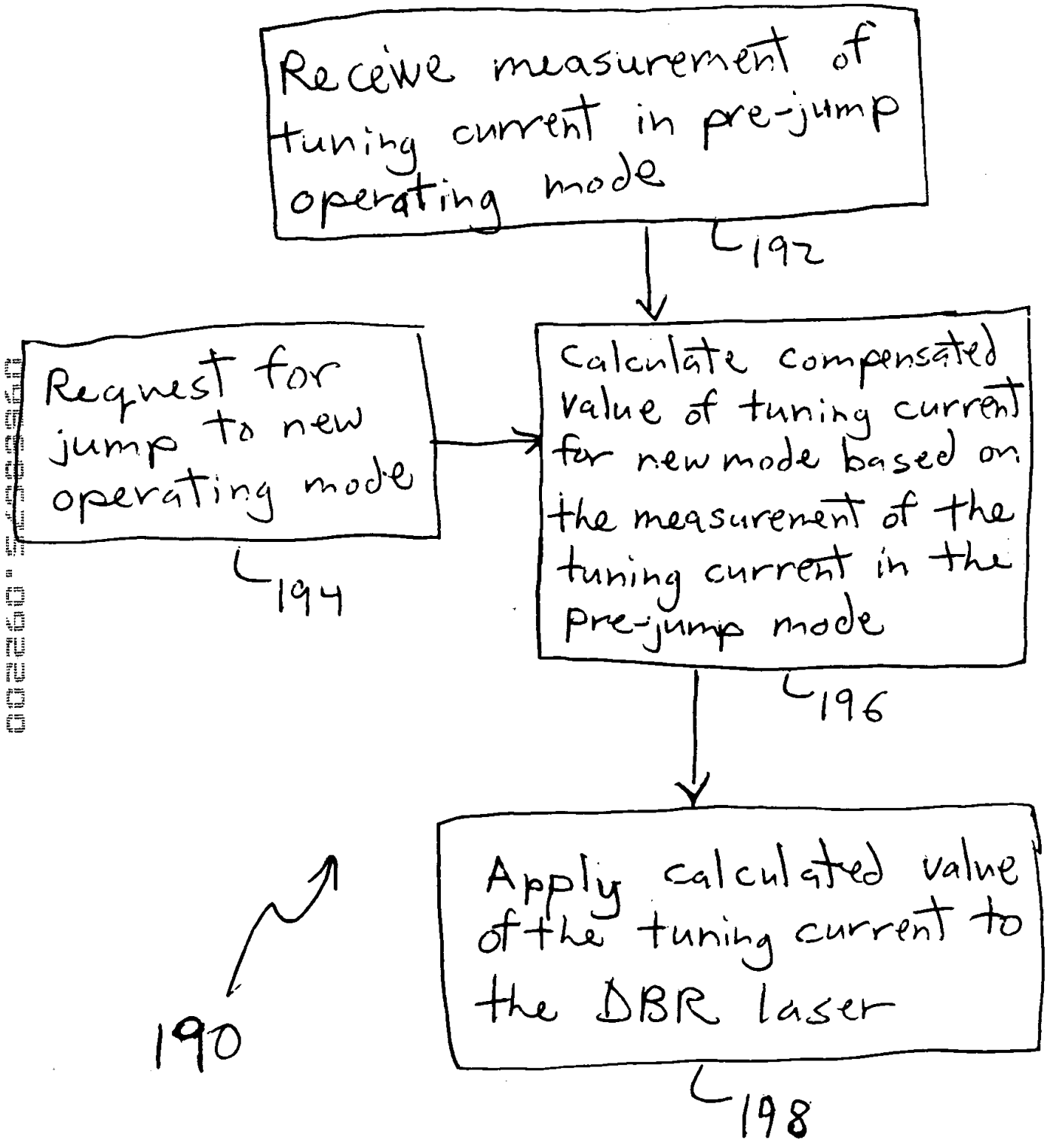

Receive measurement of tuning current in pre-jump operating mode
192
Request for jump to new operating mode
194
Calculate compensated value of tuning current for new mode based on the measurement of the tuning current in the pre-jump mode
196
Apply calculated value of the tuning current to the DBR laser
198
190

FIG. 16